

Implementation of New Improved Round Robin (NIRR) CPU scheduling algorithm using discrete event simulation

ABSTRACT

Round Robin scheduling algorithm is the most widely used scheduling algorithm because of its simplicity and fairness [1]. However it has higher context switching, larger response time, larger waiting time, larger turnaround time, and lower throughput. Reference [1] proposed a new algorithm, called New Improved Round Robin (NIRR) to enhance the Round Robin scheduling algorithm. The proposed NIRR algorithm has shown improvement over the traditional Round Robin algorithm. However the lack of details of general NIRR simulation model is a clear limitation for the further improvement of the algorithm. The main objective of this research is to validate the NIRR algorithm by developing a comprehensive simulation model using Discrete Event Simulation (DES). An NIRR simulator is deployed and is validated by ensuring the output data closely resemble the output data published by [1]. Extensive experiments were done to validate the developed NIRR simulator. The success of the developed NIRR simulator was proven by the generated results.

Keyword: CPU scheduling algorithm; Round Robin; Discrete Event Simulation (DES)